

Claims:

What is claimed is

1. An affinity microcolumn comprising a high surface area material, which has high flow properties and a low dead volume, contained within a housing and affinity reagents bound to the surface of the high surface area material, wherein the affinity reagents are either activated or activatable.
2. The affinity microcolumn according to claim 1 wherein the high surface area material is selected from the group comprising crystals, glasses, polymers and metals.
3. The affinity microcolumn according to claim 2 wherein the material is a phase separable material that has been thermally surface phase separated and the high surface area is formed by leaching one of the separated soluble phases and with resultant pore formation.
4. The affinity microcolumn according to claim 2 wherein the high surface area is formed by either chemical or electro etching of the surface.
5. The affinity microcolumn according to claim 1 wherein the affinity reagents that are bound to the surface of the high surface area materials further comprise affinity receptors bound to the affinity reagents.
6. The affinity microcolumn according to claim 5 further comprising a tethering molecule that is activated or activatable and binds the affinity receptors to the affinity reagents.
7. The affinity microcolumn according to claim 4 further comprising an amplification media that is activated or activatable and is interposed between the affinity reagents and the affinity receptors, where the amplification media allows a high density of affinity receptors to be bound to the affinity reagents than in the absence of the amplification media.
8. The affinity microcolumn according to claim 4 further comprising an amplification media interposed between the affinity reagents and the affinity receptors, where the amplification media allows better access by an analyte to the affinity receptors than in the absence of the amplification media.

9. The affinity microcolumn according to claim 7 wherein the amplification media is selected from the group consisting of biological polymers, organic polymers and inorganic polymers.
10. The affinity microcolumn according to claim 8 wherein the amplification media is selected from the group consisting of biological polymers, organic polymers, and inorganic polymers.
11. The affinity microcolumn according to claim 1 wherein the housing is a micropipette.
12. The affinity microcolumn according to claim 1 wherein the housing is a manifold having more than one microchannel, the high surface area material fitting into at least one of the microchannels.
13. The affinity microcolumn according to claim 10 wherein the housing further comprises at least one projection that supports the high surface area material.
14. The affinity microcolumn according to claim 11 wherein the housing further comprises at least one projection in at least one of the microchannels, the projection supporting the high surface area material.